

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED.

DR-149
JANUARY 1967

AD

806008

METEOROLOGICAL DATA REPORT

NIKE-HYDAC STV (SR-045)
(5 January 1967)

BY

GORDON L. DUNAWAY

ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

ECOM

UNITED STATES ARMY ELECTRONICS COMMAND

METEOROLOGICAL DATA REPORT

NIKE-HYDAC STV (SR-045)
(5 January 1967)

By

Gordon L. Dunaway

DR-149

January 1967

DA Task IV650212A1127-02

ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

Distribution of this document is unlimited.

ABSTRACT

Meteorological data gathered for the launching of Nike-Hydac STV (SR-045) are presented for the Ballistics Systems Division, U. S. Air Force and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.

CONTENTS

	PAGE
ABSTRACT -----	iii
INTRODUCTION -----	1
DISCUSSION -----	1
TABLES	
I. Theoretical Rocket Performance Values -----	2
II. Ballistic Factors -----	3
III. Anemometer-Wind Speed and Direction -----	4
IV. Pilot-Balloon-Measured Wind Data -----	5
V. Rawinsonde Measured Wind Data -----	7
VI. Computer-Calculated Upper Air Data (Release Time: 0600 MST) -----	8
VII. Computer-Calculated Upper Air Data (Release Time: 0900 MST) -----	16
VIII. Impact Prediction Data -----	21

DISCLAIMER NOTICE

**THIS DOCUMENT IS BEST QUALITY
PRACTICABLE. THE COPY FURNISHED
TO DTIC CONTAINED A SIGNIFICANT
NUMBER OF PAGES WHICH DO NOT
REPRODUCE LEGIBLY.**

*OR ARE
Blank pgs.
that have
Been Removed*

**BEST
AVAILABLE COPY**

INTRODUCTION

Nike-Hydac STV (SR-045) was launched from Launch Complex 33, L-314, White Sands Missile Range (WSMR), New Mexico, at 0900 hours MST, 5 January 1967.

Meteorological data used in conjunction with theoretical calculations to predict rocket impact were collected by the Meteorological Support Division, Atmospheric Sciences Laboratory (ASL), WSMR, New Mexico. The Ballistics Meteorologist for this firing was Gordon L. Dunaway assisted by SFC Leon H. Allen.

DISCUSSION

Wind data for the first 216 feet above the surface were obtained from a system composed of five Aerovanes mounted on a 200-foot tower and cabled to five component wind indicators.

From 216 to 4,000 feet above the surface, wind data were obtained from an automatic pilot-balloon wind measuring system utilizing a T-9 radar tracker. Pilot-balloons released at the launch site were equipped with light-weight corner reflectors to improve the reflected signal and permit radar tracking. An analog computer converted azimuth and elevation angles and slant range data into horizontal wind components versus altitude. East-West and North-South wind component values were displayed on two plotters. It was possible to read from the plotters the mean wind component values in the various ballistic layers.

Temperature, pressure, and humidity data, along with upper wind data from 4,000 to 74,000 feet above the surface, were obtained from standard rawinsonde observations.

Mean wind component values in each ballistic zone were determined from vertical cross sections by the equal-area method.

Theoretical rocket performance values and ballistic factors as a function of altitude were provided by ASL, and are the basis for data appearing in Table VIII.

PAYLOAD			233.0	Pounds
CORLIOLIS DISPLACEMENT	WEST		4.6	Miles
SECOND-STAGE IGNITION	TIME		20.0	Seconds
	ALTITUDE		36,691	Feet MSL
PEAK	TIME		232.0	Seconds
	ALTITUDE		693,948	Feet MSL
UNIT WIND EFFECT	HEAD		2.3815	Miles/MPH
	CROSS		2.4678	Miles/MPH
	TAIL		2.3815	Miles/MPH
TOWER TILT EFFECT			13.83	Miles/Degree

TABLE I. THEORETICAL ROCKET PERFORMANCE VALUES
NIKE-HYDAC STV (SR-045)

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
11- 60	.1440
60- 108	.0966
108- 148	.0629
148- 184	.0502
184- 216	.0286
216- 300	.0724
300- 400	.0533
400- 600	.0752
600- 800	.0557
800-1000	.0400

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
1000- 1400	.0555
1400- 2000	.0575
2000- 2500	.0288
2500- 3000	.0195
3000- 3500	.0112
3500- 4000	.0073
4000- 4253	.0012
4253- 9000	-.0135
9000-15000	-.0147
15000-21000	-.0166

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
21000-26000	-.0102
26000-32691	-.0110
32691-34000	.0430
34000-36000	.0411
36000-41000	.0545
41000-46000	.0259
46000-51000	.0154
51000-56000	.0092
56000-61000	.0060
61000-66000	.0040
66000-74200	.0020

TABLE II. BALLISTIC FACTORS
NIKE-HYDAC STV (SR-045)

AERO- VANE NO. *	MEAN WIND COMPONENTS IN MILES PER HOUR									
	1		2		3		4		5	
	0700 MST		0730 MST		0800 MST		0815 MST		0830 MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
1	0.0	0.0	0.0	1.0W	0.0	1.0W	0.0	1.0W	0.0	1.0W
2	0.0	1.0W	0.0	1.0W	0.0	1.0	0.0	1.0	0.0	1.0
3	0.0	0.0	2.0N	2.0W	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	1.0N	1.0W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

AERO- VANE NO. *	MEAN WIND COMPONENTS IN MILES PER HOUR									
	6		7		8		9		10	
	0900 MST		0915 MST		0930 MST		0945 MST		0950 MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
1	0.0	1.0W								
2	0.0	1.0								
3	0.0	0.0								
4	0.0	0.0								
5	0.0	0.0								

TABLE III. ANEMOMETER WIND SPEED AND DIRECTION
NIKE-HYDAC STV (SR-045)

* Heights corresponding to Aerovane Numbers: 1 = 35 Feet 3 = 128 Feet 5 = 200 Feet
2 = 88 Feet 4 = 168 Feet

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MILES PER HOUR									
	1		2		3		4		5	
	0700 MST		0730 MST		0800 MST		0815 MST		0830 MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
216-300	1.0N	2.5W	1.0N	2.0W	2.5N	0.5W	3.0N	3.5W	3.0N	1.0W
300-400	1.0	2.5	1.5	2.5	2.5	2.0	3.5	4.0	1.5	2.0
400-600	0.5S	2.5	0.5S	4.5	0.0	4.0	0.0	5.5	2.5S	2.0
600-800	2.5	2.5	3.5	5.0	3.0S	2.5	7.0S	2.0	5.0	0.0
800-1000	3.5	1.5	7.0	1.5	2.5	2.5	6.5	1.0	7.0	1.0E
1000-1400	6.5	0.5	11.5	2.0E	8.5	4.0E	10.5	0.5E	9.0	2.0W
1400-2000	4.5	1.0E	11.5	1.5	8.0	2.0W	9.5	3.5W	8.0	3.0
2000-2500	2.5	1.0	7.5	1.5	7.0	6.0	9.0	5.5	7.0	6.0
2500-3000	2.5	3.0W	5.0	1.0W	5.0	3.5	3.0	2.0	2.0W	3.0
3000-3500	1.5	5.0	4.0	11.0	2.0	6.0	1.5	5.5	2.0S	9.0
3500-4000	0.5	11.0	2.0	20.0	4.5	19.0	7.5	23.0	6.5	26.0

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA
NINE-HYDAC STV (SN-045)

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MILES PER HOUR									
	6		7		8		MST		MST	
	0840 MST		0850 MST		0902 MST					
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
216- 300	1.5N	0.5E	1.5N	1.0W	0.5N	0.5E				
300- 400	1.0	1.0W	1.0	1.0	0.5	0.5W				
400- 600	3.0S	2.0	2.0S	0.5	2.5S	0.5				
600- 800	5.0	2.0E	6.5	2.0E	9.0	1.5E				
800-1000	8.5	3.0	9.5	1.0W	9.0	1.0W				
1000-1400	10.0	2.0W	10.0	3.0	10.5	4.0				
1400-2000	8.5	3.0	8.0	3.5	5.5	5.0				
2000-2500	6.5	5.0	6.0	5.0	5.5	6.0				
2500-3000	1.0N	4.5	0.5N	3.0	0.0	5.0				
3000-3500	5.5S	10.0	6.5S	16.0	6.0S	17.0				
3500-4000	4.0	24.0	4.5	29.5	3.0	27.0				

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA (Cont)
NINE-HYDAC STY (SR-045)

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN KNOTS					
	1 0600 MST		2 0900 MST			
	N-S	E-W	N-S	E-W	N-S	E-W
4000-4253	0.0	20.0W	0.0	21.0W		
4253-9000	0.0	27.0	4.2N	23.6		
9000-15000	0.0	31.0	0.0	37.0		
15000-21000	4.7N	26.6	0.0	32.0		
21000-26000	9.6	26.3	0.0	25.0		
26000-32691	13.0	35.7	16.5N	28.6		
32691-34000	23.8	28.3	19.5	33.8		
34000-36000	19.0	32.9	19.5	33.8		
36000-41000	13.7	37.6	7.4	42.4		
41000-46000	8.7	49.3	0.0	53.0		
46000-51000	0.0	48.0	0.0	48.0		
51000-56000	6.8N	38.4	6.1N	34.5		
56000-61000	7.2	19.7	4.4	24.6		
61000-66000	7.7	9.2	8.5	3.1		
66000-74200	11.3	6.5E	5.5	9.5E		

TABLE V. RAWTINSONDE-MEASURED WIND DATA
NIKE-HYDAC STV (SR-045)

STATION ALTITUDE 3989.0 FEET MSL
5 JAN. 67 0600 HRS MST
ASCENSION NO. 6

UPPER AIR DATA
0917003903
WHITE SANDS SITE
TABLE VI

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE					DIRECTION DEGREES (TN)	SPEED KNOTS	
3989.0	882.2	-11.0	-19.5	50.0	1171.8	630.6	0.	0.	0.	1.000266
4000.0	881.8	-10.6	-19.2	49.5	1169.6	631.1	359.6	359.6	0.0	1.000268
4500.0	865.1	2.5	-11.8	34.1	1092.2	646.8	342.2	342.2	0.9	1.000256
5000.0	849.0	4.9	-11.0	30.6	1062.7	649.6	324.7	324.7	1.7	1.000250
5500.0	833.3	5.1	-11.7	28.6	1042.1	649.9	307.3	307.3	2.5	1.000244
6000.0	817.9	5.4	-12.3	26.6	1021.9	650.2	289.8	289.8	3.3	1.000239
6500.0	802.8	5.6	-13.0	24.8	1002.5	650.4	279.8	279.8	5.2	1.000234
7000.0	788.0	5.4	-13.6	24.0	984.5	650.2	278.3	278.3	8.2	1.000230
7500.0	773.4	5.3	-14.1	23.2	966.8	650.1	275.7	275.7	11.8	1.000225
8000.0	759.1	5.1	-14.7	22.4	949.4	649.9	272.4	272.4	15.7	1.000221
8500.0	745.1	5.0	-15.2	21.6	932.4	649.7	272.9	272.9	19.4	1.000217
9000.0	731.3	4.7	-15.9	20.9	916.1	649.4	275.2	275.2	23.0	1.000213
9500.0	717.6	4.0	-16.7	20.6	901.4	648.5	277.5	277.5	24.4	1.000209
10000.0	704.3	3.3	-17.5	20.2	887.0	647.6	279.8	279.8	25.3	1.000205
10500.0	691.1	2.5	-18.3	19.9	872.7	646.8	281.0	281.0	25.7	1.000202
11000.0	678.2	1.8	-19.1	19.6	858.8	645.9	281.7	281.7	26.2	1.000198
11500.0	665.6	1.1	-19.9	19.2	845.0	645.1	279.2	279.2	26.6	1.000195
12000.0	653.1	0.2	-20.6	19.3	832.0	643.9	276.7	276.7	26.9	1.000191
12500.0	640.8	-1.3	-21.2	20.3	820.5	642.3	273.9	273.9	27.0	1.000189
13000.0	628.6	-2.7	-21.9	21.3	809.3	640.6	271.7	271.7	27.1	1.000186
13500.0	616.7	-3.8	-22.6	21.8	797.3	639.2	270.6	270.6	27.2	1.000183
14000.0	604.9	-4.3	-23.5	21.0	789.5	638.6	270.2	270.2	27.7	1.000179
14500.0	593.3	-4.8	-24.3	20.2	769.9	638.0	270.3	270.3	28.4	1.000176
15000.0	581.9	-5.3	-25.2	19.4	756.6	637.4	270.4	270.4	29.3	1.000173
15500.0	570.7	-5.8	-26.0	18.6	743.4	636.8	270.5	270.5	30.3	1.000169
16000.0	559.7	-6.4	-26.9	18.1	730.9	636.1	270.2	270.2	31.0	1.000166
16500.0	548.0	-7.6	-27.7	18.3	719.7	634.7	269.7	269.7	31.6	1.000164
17000.0	538.1	-8.8	-28.5	18.6	708.8	633.3	270.3	270.3	32.1	1.000161
17500.0	527.5	-9.9	-29.3	18.9	698.0	631.9	271.1	271.1	32.5	1.000158
18000.0	517.2	-11.1	-30.2	19.2	687.4	630.4	270.7	270.7	32.5	1.000156

STATION ALTITUDE 3989.0 FEET MSL
5 JAN. 67 0600 HRS MST
ASCENSION NO. 6

UPPER AIR DATA
0927003903
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
18500.0	507.1	-12.3	-31.0	19.5	677.0	629.0	629.0	270.2	32.3	1.000153
19000.0	497.2	-13.4	-31.8	19.8	666.7	627.6	627.6	270.3	32.0	1.000151
19500.0	487.4	-14.5	-32.6	20.0	656.5	626.3	626.3	270.5	31.7	1.000148
20000.0	477.6	-15.4	-33.2	20.3	645.3	625.3	625.3	270.5	29.7	1.000146
20500.0	468.0	-16.2	-33.8	20.5	634.4	624.3	624.3	270.9	27.8	1.000143
21000.0	458.6	-17.0	-34.4	20.8	623.7	623.2	623.2	273.7	26.7	1.000141
21500.0	449.4	-17.9	-35.0	21.0	613.1	622.2	622.2	276.7	25.8	1.000138
22000.0	440.3	-18.7	-35.6	21.3	602.7	621.2	621.2	280.0	25.2	1.000136
22500.0	431.5	-19.5	-36.2	21.5	592.6	620.2	620.2	283.6	24.7	1.000134
23000.0	422.8	-20.3	-36.8	21.8	582.5	619.2	619.2	287.3	24.2	1.000131
23500.0	414.3	-21.2	-37.4	22.0	572.7	618.1	618.1	288.0	24.7	1.000129
24000.0	405.5	-22.5	-38.4	22.1	563.6	616.6	616.6	288.1	24.9	1.000127
24500.0	397.0	-23.7	-39.5	22.2	554.5	615.0	615.0	287.5	24.2	1.000125
25000.0	388.7	-25.0	-40.6	22.2	545.6	613.4	613.4	286.1	24.7	1.000123
25500.0	380.5	-26.3	-41.6	22.3	536.9	611.8	611.8	284.1	26.2	1.000121
26000.0	372.5	-27.5	-42.7	22.4	528.4	610.3	610.3	284.4	26.0	1.000119
26500.0	364.7	-28.8	-43.8	22.5	519.9	608.7	608.7	285.1	25.6	1.000117
27000.0	357.0	-30.1	-44.8	22.6	511.7	607.1	607.1	286.7	27.0	1.000115
27500.0	349.5	-31.4	-45.9	22.7	503.5	605.5	605.5	288.5	28.0	1.000113
28000.0	342.1	-32.6	-47.0	22.7	495.6	603.9	603.9	290.8	27.9	1.000111
28500.0	335.0	-33.9	-48.0	22.8	487.7	602.3	602.3	292.5	28.2	1.000109
29000.0	327.9	-35.2	-49.1	22.9	480.0	600.7	600.7	293.0	29.1	1.000107
29500.0	321.0	-36.4	-50.2	23.0	472.4	599.1	599.1	292.9	29.5	1.000106
30000.0	313.9	-37.7	-51.8	21.8**	464.5	597.5	597.5	292.3	29.4	1.000104
30500.0	306.8	-39.0	-53.5	20.2**	456.6	595.8	595.8	290.4	31.0	1.000102
31000.0	299.9	-40.3	-55.4	18.5**	448.8	594.2	594.2	288.3	32.8	1.000100
31500.0	293.1	-41.6	-57.2	16.9**	441.1	592.5	592.5	288.3	34.7	1.000098
32000.0	286.5	-42.9	-59.1	15.2**	433.6	590.9	590.9	288.5	36.5	1.000097
32500.0	280.1	-44.2	-61.1	13.6**	426.2	589.2	589.2	289.3	38.1	1.000095
33000.0	273.8	-45.5	-63.1	12.0**	419.0	587.5	587.5	290.2	39.6	1.000093

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
5 JAN. 67 0600 HRS MST
ASCENSION NO. 6

UPPER AIR DATA
0917003903
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
33500.0	267.6	-46.8	-65.3	10.3**	411.9	585.8		291.7	40.5	1.000092
34000.0	261.5	-48.1	-67.6	8.7**	404.9	584.2		293.4	41.2	1.000090
34500.0	255.6	-49.4	-70.1	7.0**	398.0	582.5		295.7	40.4	1.000089
35000.0	249.9	-50.7	-73.0	5.4**	391.3	580.8		298.0	39.7	1.000087
35500.0	244.2	-52.0	-76.3	3.7**	384.7	579.1		300.3	39.0	1.000086
36000.0	238.7	-53.3	-80.9	2.1**	378.3	577.4		302.5	38.4	1.000084
36500.0	233.3	-54.6	-90.8	0.4**	371.9	575.7		304.8	37.6	1.000083
37000.0	227.9	-55.8	0.	-0. **	365.2	574.1		306.9	37.0	1.000081
37500.0	222.4	-57.0	0.	-0. **	358.5	572.5		304.1	38.2	1.000080
38000.0	217.1	-58.2	0.	-0. **	351.9	570.9		301.2	39.2	1.000078
38500.0	212.0	-59.3	0.	-0. **	345.4	569.3		298.1	39.3	1.000077
39000.0	206.9	-60.5	0.	-0. **	339.1	567.8		295.4	39.5	1.000076
39500.0	202.0	-60.4	0.	-0. **	330.8	568.0		293.4	39.8	1.000074
40000.0	197.1	-58.3	0.	-0. **	319.7	570.7		291.6	39.9	1.000071
40500.0	192.4	-59.2	0.	-0. **	313.3	569.5		292.1	39.0	1.000070
41000.0	187.7	-60.1	0.	-0. **	307.0	568.3		292.6	38.0	1.000068
41500.0	183.2	-61.0	0.	-0. **	300.9	567.1		293.4	39.7	1.000067
42000.0	178.8	-61.9	0.	-0. **	294.9	566.0		294.2	41.6	1.000066
42500.0	174.5	-62.8	0.	-0. **	289.0	564.8		291.5	42.0	1.000064
43000.0	170.3	-62.8	0.	-0. **	282.0	564.8		288.7	42.3	1.000063
43500.0	166.1	-62.4	0.	-0. **	274.6	565.3		284.9	44.7	1.000061
44000.0	162.0	-63.0	0.	-0. **	268.5	564.5		281.1	46.8	1.000060
44500.0	158.0	-63.6	0.	-0. **	262.7	563.7		277.4	47.0	1.000058
45000.0	154.1	-64.2	0.	-0. **	256.9	562.9		274.3	47.0	1.000057
45500.0	150.3	-64.7	0.	-0. **	251.3	562.1		273.9	46.5	1.000056
46000.0	146.6	-65.3	0.	-0. **	245.8	561.3		273.4	46.0	1.000055
46500.0	143.0	-65.9	0.	-0. **	240.4	560.5		273.1	46.2	1.000054
47000.0	139.4	-66.5	0.	-0. **	235.1	559.7		272.7	46.3	1.000052
47500.0	136.0	-67.1	0.	-0. **	230.0	558.9		272.3	46.3	1.000051
48000.0	132.6	-67.7	0.	-0. **	225.0	558.1		271.9	46.2	1.000050

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL

5 JAN. 67

ASCENSION NO. 6

UPPER AIR DATA

0917003903

WHITE SANDS SITE

TABLE VI (Cont)

WSTM SITE COORDINATES

E 488,580 FEET

N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
48500.0	129.4	-68.3	0.	-0. **	220.0	557.3	272.7	272.7	47.9	1.000049
49000.0	126.2	-68.9	0.	-0. **	215.2	556.5	273.8	273.8	49.9	1.000048
49500.0	123.1	-69.5	0.	-0. **	210.5	555.7	274.5	274.5	50.0	1.000047
50000.0	120.0	-69.7	0.	-0. **	205.5	555.4	274.9	274.9	48.8	1.000046
50500.0	117.0	-69.7	0.	-0. **	200.3	555.4	275.4	275.4	47.9	1.000045
51000.0	114.0	-69.7	0.	-0. **	195.3	555.4	276.0	276.0	47.4	1.000043
51500.0	111.2	-69.7	0.	-0. **	190.4	555.4	275.9	275.9	46.9	1.000042
52000.0	108.4	-70.2	0.	-0. **	186.0	554.8	273.6	273.6	46.3	1.000041
52500.0	105.6	-71.0	0.	-0. **	182.0	553.7	271.2	271.2	45.8	1.000041
53000.0	102.9	-71.7	0.	-0. **	178.1	552.6	270.7	270.7	45.1	1.000040
53500.0	100.3	-72.5	0.	-0. **	174.2	551.5	270.3	270.3	44.5	1.000039
54000.0	97.8	-73.3	0.	-0. **	170.5	550.4	269.9	269.9	43.8	1.000038
54500.0	95.3	-73.7	0.	-0. **	166.5	549.8	269.4	269.4	43.1	1.000037
55000.0	92.9	-73.2	0.	-0. **	161.9	550.6	270.4	270.4	43.8	1.000036
55500.0	90.6	-72.7	0.	-0. **	157.4	551.3	273.0	273.0	46.1	1.000035
56000.0	88.3	-72.1	0.	-0. **	153.1	552.0	274.7	274.7	46.8	1.000034
56500.0	86.1	-71.6	0.	-0. **	148.8	552.8	274.9	274.9	44.9	1.000033
57000.0	83.9	-71.1	0.	-0. **	144.7	553.5	275.6	275.6	43.5	1.000032
57500.0	81.8	-70.5	0.	-0. **	140.7	554.2	277.3	277.3	43.2	1.000031
58000.0	79.8	-70.0	0.	-0. **	136.8	555.0	279.0	279.0	42.2	1.000030
58500.0	77.8	-69.5	0.	-0. **	133.1	555.7	280.2	280.2	36.8	1.000030
59000.0	75.8	-68.9	0.	-0. **	129.4	556.4	281.4	281.4	31.5	1.000029
59500.0	73.9	-68.4	0.	-0. **	125.8	557.2	282.3	282.3	30.7	1.000028
60000.0	72.1	-67.9	0.	-0. **	122.3	557.9	283.1	283.1	31.0	1.000027
60500.0	70.3	-67.3	0.	-0. **	119.0	558.6	282.1	282.1	30.0	1.000026
61000.0	68.5	-66.8	0.	-0. **	115.7	559.3	279.1	279.1	27.4	1.000026
61500.0	66.8	-66.3	0.	-0. **	112.5	560.1	275.8	275.8	25.4	1.000025
62000.0	65.1	-65.7	0.	-0. **	109.4	560.8	271.1	271.1	27.2	1.000024
62500.0	63.5	-65.2	0.	-0. **	106.4	561.5	266.5	266.5	29.0	1.000024
63000.0	61.9	-64.7	0.	-0. **	103.5	562.1	266.0	266.0	28.3	1.000023

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
5 JAN. 67 0600 HRS MST
ASCENSION NO. 6

UPPER AIR DATA
0917003903
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
63500.0	60.4	-65.5	0.	-0. **	101.3	561.1	266.3	27.1	1.000023	
64000.0	58.9	-66.2	0.	-0. **	99.2	560.1	268.2	26.7	1.000022	
64500.0	57.5	-66.3	0.	-0. **	96.8	560.0	271.4	27.0	1.000022	
65000.0	56.1	-65.2	0.	-0. **	93.9	561.5	275.2	25.6	1.000021	
65500.0	54.7	-64.1	0.	-0. **	91.2	563.0	281.0	18.3	1.000020	
66000.0	53.4	-63.0	0.	-0. **	88.5	564.4	286.8	11.1	1.000020	
66500.0	52.1	-62.0	0.	-0. **	85.9	565.9	298.3	8.8	1.000019	
67000.0	50.8	-60.9	0.	-0. **	83.4	567.3	310.8	6.9	1.000019	
67500.0	49.6	-60.1	0.	-0. **	81.1	568.3	321.5	7.0	1.000018	
68000.0	48.4	-59.8	0.	-0. **	79.0	568.7	331.9	7.4	1.000018	
68500.0	47.2	-59.6	0.	-0. **	77.1	569.1	339.4	9.4	1.000017	
69000.0	46.1	-59.3	0.	-0. **	75.2	569.4	348.6	11.5	1.000017	
69500.0	45.0	-59.0	0.	-0. **	73.3	569.8	6.7	11.8	1.000016	
70000.0	44.0	-58.8	0.	-0. **	71.5	570.1	26.9	12.1	1.000016	
70500.0	42.9	-58.5	0.	-0. **	69.7	570.5	37.6	14.7	1.000016	
71000.0	41.9	-58.2	0.	-0. **	67.9	570.8	46.9	17.0	1.000015	
71500.0	40.9	-58.0	0.	-0. **	66.3	571.2	44.2	16.5	1.000015	
72000.0	39.9	-57.7	0.	-0. **	64.6	571.5	41.7	15.9	1.000014	
72500.0	39.0	-57.4	0.	-0. **	63.0	571.9	40.6	15.0	1.000014	
73000.0	38.1	-57.2	0.	-0. **	61.4	572.2	39.5	14.2	1.000014	
73500.0	37.2	-56.9	0.	-0. **	59.9	572.6	41.9	14.0	1.000013	
74000.0	36.3	-56.6	0.	-0. **	58.4	572.9	44.4	13.8	1.000013	
74500.0	35.4	-56.4	0.	-0. **	57.0	573.3	45.8	13.4	1.000013	
75000.0	34.6	-56.1	0.	-0. **	55.5	573.6	45.9	12.8	1.000012	
75500.0	33.8	-55.9	0.	-0. **	54.2	574.0	46.1	12.3	1.000012	
76000.0	33.0	-55.6	0.	-0. **	52.8	574.3	38.3	11.6	1.000012	
76500.0	32.2	-55.3	0.	-0. **	51.5	574.7	30.2	10.9	1.000011	
77000.0	31.4	-55.1	0.	-0. **	50.2	575.0	29.0	11.7	1.000011	
77500.0	30.7	-54.9	0.	-0. **	49.0	575.3	36.2	14.3	1.000011	
78000.0	30.0	-54.8	0.	-0. **	47.8	575.3	43.4	16.8	1.000011	

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
5 JAN. 67 0600 HRS MST
ASCENSION NO. 6

UPPER AIR DATA
0917003903
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
78500.0	29.3	-54.8	0.	-0. **	46.7	575.4	41.7	18.9	1.000010	
79000.0	28.6	-54.8	0.	-0. **	45.6	575.4	39.2	20.9	1.000010	
79500.0	27.9	-54.7	0.	-0. **	44.5	575.5	37.8	22.9	1.000010	
80000.0	27.3	-54.7	0.	-0. **	43.5	575.5	38.3	24.9	1.000010	
80500.0	26.6	-54.7	0.	-0. **	42.5	575.6	38.9	26.8	1.000009	
81000.0	26.0	-54.6	0.	-0. **	41.5	575.6	39.5	26.6	1.000009	
81500.0	25.4	-54.6	0.	-0. **	40.5	575.7	40.1	26.3	1.000009	
82000.0	24.8	-54.5	0.	-0. **	39.6	575.7	41.5	25.8	1.000009	
82500.0	24.2	-54.5	0.	-0. **	38.6	575.8	45.3	25.7	1.000009	
83000.0	23.7	-54.5	0.	-0. **	37.7	575.8	49.1	25.5	1.000008	
83500.0	23.1	-54.4	0.	-0. **	36.8	575.9	51.7	25.4	1.000008	
84000.0	22.6	-54.4	0.	-0. **	36.0	575.9	53.7	25.4	1.000008	
84500.0	22.1	-54.4	0.	-0. **	35.1	576.0	55.5	25.3	1.000008	
85000.0	21.5	-54.3	0.	-0. **	34.3	576.0	53.8	23.8	1.000008	
85500.0	21.0	-54.3	0.	-0. **	33.5	576.1	52.1	22.2	1.000007	
86000.0	20.5	-54.2	0.	-0. **	32.7	576.1	50.6	20.8	1.000007	
86500.0	20.1	-54.2	0.	-0. **	31.9	576.1	49.5	20.1	1.000007	
87000.0	19.6	-54.2	0.	-0. **	31.2	576.2	48.4	19.3	1.000007	
87500.0	19.1	-54.1	0.	-0. **	30.5	576.2	46.9	18.7	1.000007	
88000.0	18.7	-54.1	0.	-0. **	29.7	576.3	44.2	18.2	1.000007	
88500.0	18.3	-54.1	0.	-0. **	29.0	576.3	41.6	17.8	1.000006	
89000.0	17.8	-54.0	0.	-0. **	28.4	576.4	38.8	18.0	1.000006	
89500.0	17.4	-54.0	0.	-0. **	27.7	576.4	35.6	19.2	1.000006	
90000.0	17.0	-53.9	0.	-0. **	27.0	576.5	32.4	20.4	1.000006	
90500.0	16.6	-53.9	0.	-0. **	26.4	576.5	29.9	21.2	1.000006	
91000.0	16.2	-53.9	0.	-0. **	25.8	576.6	28.2	21.4	1.000006	
91500.0	15.9	-53.8	0.	-0. **	25.2	576.6	26.5	21.7	1.000006	
92000.0	15.5	-53.8	0.	-0. **	24.6	576.7	25.1	21.4	1.000005	
92500.0	15.1	-54.2	0.	-0. **	24.1	576.2	24.0	20.7	1.000005	
93000.0	14.8	-54.5	0.	-0. **	23.5	575.8	22.9	19.9	1.000005	

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
5 JAN. 67 0600 HRS MST
ASCENSION NO. 6

UPPER AIR DATA
0917003903
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
93500.0	14.4	-54.8	0.	-0. **	23.0	575.3	19.0	19.0	19.5	1.000005
94000.0	14.1	-55.2	0.	-0. **	22.5	574.9	12.7	12.7	19.5	1.000005
94500.0	13.8	-55.5	0.	-0. **	22.0	574.4	6.4	6.4	19.5	1.000005
95000.0	13.4	-55.7	0.	-0. **	21.5	574.1	0.3	0.3	19.6	1.000005
95500.0	13.1	-55.5	0.	-0. **	21.0	574.5	354.4	354.4	19.8	1.000005
96000.0	12.8	-55.2	0.	-0. **	20.5	574.8	348.5	348.5	20.1	1.000005
96500.0	12.5	-54.9	0.	-0. **	20.0	575.2	342.8	342.8	20.9	1.000004
97000.0	12.2	-54.7	0.	-0. **	19.5	575.5	337.1	337.1	22.0	1.000004
97500.0	11.9	-54.4	0.	-0. **	19.0	575.9	331.5	331.5	23.2	1.000004
98000.0	11.7	-54.1	0.	-0. **	18.6	576.3	325.0	325.0	23.5	1.000004
98500.0	11.4	-53.9	0.	-0. **	18.1	576.6	318.1	318.1	23.5	1.000004
99000.0	11.1	-53.6	0.	-0. **	17.7	577.0	311.2	311.2	23.4	1.000004
99500.0	10.9	-53.3	0.	-0. **	17.2	577.3	308.7	308.7	24.5	1.000004
100000.0	10.6	-53.1	0.	-0. **	16.8	577.7	307.9	307.9	26.1	1.000004
100500.0	10.4	-52.8	0.	-0. **	16.4	578.0	307.1	307.1	27.7	1.000004
101000.0	10.1	-52.5	0.	-0. **	16.0	578.4	304.4	304.4	28.8	1.000004
101500.0	9.9	-52.2	0.	-0. **	15.6	578.7	301.2	301.2	29.6	1.000003
102000.0	9.7	-52.0	0.	-0. **	15.2	579.1	297.9	297.9	30.5	1.000003
102500.0	9.4	-51.7	0.	-0. **	14.9	579.4	292.6	292.6	31.0	1.000003
103000.0	9.2	-51.4	0.	-0. **	14.5	579.8	286.8	286.8	31.4	1.000003
103500.0	9.0	-50.5	0.	-0. **	14.1	581.0	281.0	281.0	31.8	1.000003
104000.0	8.8	-49.5	0.	-0. **	13.7	582.3	276.5	276.5	33.6	1.000003
104500.0	8.6	-48.5	0.	-0. **	13.4	583.6	272.2	272.2	35.8	1.000003
105000.0	8.4	-47.5	0.	-0. **	13.0	584.9	268.0	268.0	38.0	1.000003
105500.0	8.2	-47.0	0.	-0. **	12.7	585.6	265.4	265.4	41.1	1.000003
106000.0	8.0	-47.1	0.	-0. **	12.4	585.4	263.2	263.2	44.4	1.000003
106500.0	7.9	-47.3	0.	-0. **	12.1	585.1	261.0	261.0	47.7	1.000003
107000.0	7.7	-47.5	0.	-0. **	11.9	584.9	260.8	260.8	51.4	1.000003
107500.0	7.5	-47.7	0.	-0. **	11.6	584.7	261.2	261.2	55.3	1.000003
108000.0	7.3	-47.5	0.	-0. **	11.3	584.9	261.6	261.6	59.2	1.000003

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL

5 JAN. 67

ASCENSION NO. 6

UPPER AIR DATA

0917003903

WHITE SANDS SITE

TABLE VI (Cont)

WSTM SITE COORDINATES

E 488,580 FEET

N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
108500.0	7.2	-46.7	0.	-0. **	11.0	585.9		262.2	64.1	1.000002
109000.0	7.0	-46.0	0.	-0. **	10.8	586.9		263.0	69.5	1.000002
109500.0	6.9	-45.2	0.	-0. **	10.5	587.9		263.8	74.9	1.000002
110000.0	6.7	-44.4	0.	-0. **	10.2	588.9				1.000002
110500.0	6.6	-43.6	0.	-0. **	10.0	589.9				1.000002
111000.0	6.4	-42.8	0.	-0. **	9.7	590.9				1.000002
111500.0	6.3	-42.0	0.	-0. **	9.5	591.9				1.000002
112000.0	6.1	-41.3	0.	-0. **	9.2	592.9				1.000002
112500.0	6.0	-40.5	0.	-0. **	9.0	593.9				1.000002
113000.0	5.9	-39.7	0.	-0. **	8.8	594.9				1.000002

15

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
5 JAN. 67 0900 HRS MST
ASCENSION NO. 7

UPPER AIR DATA
0917003904
WHITE SANDS SITE
TABLE VII

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES	DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TM)	SPEED KNOTS	INDEX OF REFRACTION
3989.0	882.1	-1.6	-13.5	40.0	1130.7	641.9	0.	0.	1.000263
4000.0	881.7	-1.6	-13.5	39.8	1130.2	642.0	359.7	0.0	1.000263
4500.0	865.1	0.8	-13.3	34.0	1099.2	644.8	349.9	2.2	1.000256
5000.0	848.8	1.9	-14.0	29.6	1074.1	646.1	332.1	4.5	1.000250
5500.0	833.1	4.2	-13.3	26.7	1045.5	648.8	318.3	6.7	1.000244
6000.0	817.7	4.8	-13.7	24.8	1024.0	649.5	304.5	8.9	1.000239
6500.0	802.6	5.4	-14.2	22.9	1003.0	650.2	290.7	11.1	1.000233
7000.0	787.7	6.0	-14.7	21.0	982.4	650.8	276.9	13.3	1.000228
7500.0	773.2	6.6	-15.4	19.2	962.3	651.5	265.8	15.4	1.000223
8000.0	758.9	6.3	-15.6	19.2	945.4	651.2	269.5	17.2	1.000219
8500.0	744.9	5.9	-15.7	19.5	929.2	650.8	273.1	19.0	1.000216
9000.0	731.2	5.6	-15.8	19.7	913.2	650.4	276.3	20.7	1.000212
9500.0	717.7	5.2	-16.0	20.0	897.5	650.0	278.5	22.1	1.000209
10000.0	704.3	4.3	-16.9	19.6	883.6	648.9	280.6	23.5	1.000205
10500.0	691.1	3.4	-17.9	19.3	869.9	647.8	281.4	24.4	1.000201
11000.0	678.2	2.5	-18.9	18.9	856.5	646.7	281.3	25.1	1.000198
11500.0	665.5	1.6	-19.9	18.5	843.4	645.6	281.2	25.8	1.000194
12000.0	653.0	0.7	-20.9	18.1	830.4	644.5	279.9	27.1	1.000191
12500.0	640.8	-0.3	-21.9	17.8	817.6	643.4	278.3	28.6	1.000188
13000.0	628.8	-1.2	-22.9	17.4	805.0	642.3	276.7	30.1	1.000184
13500.0	617.0	-2.1	-24.0	17.0	792.7	641.2	275.0	31.4	1.000181
14000.0	605.3	-2.2	-24.0	17.0	777.9	641.1	273.3	32.7	1.000178
14500.0	593.5	-3.3	-24.8	17.1	765.8	639.8	271.6	34.0	1.000175
15000.0	581.9	-4.4	-25.7	17.3	754.0	638.5	270.3	35.2	1.000172
15500.0	570.5	-5.5	-26.5	17.4	742.3	637.2	269.1	36.4	1.000169
16000.0	559.4	-6.6	-27.3	17.6	730.9	635.8	268.0	37.6	1.000166
16500.0	548.5	-7.7	-28.2	17.7	719.6	634.5	267.5	38.2	1.000164
17000.0	537.7	-8.8	-29.0	17.9	708.5	633.2	267.5	38.3	1.000161
17500.0	527.2	-9.9	-29.9	18.0	697.6	631.8	267.4	38.4	1.000158
18000.0	516.9	-11.0	-30.7	18.1	686.9	630.5	267.6	38.3	1.000156

STATION ALTITUDE 3989.0 FEET MSL
5 JAN. 67 0900 HRS MST
ASCENSION NO. 7

UPPER AIR DATA
0917003904
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
18500.0	506.8	-12.1	-31.6	18.3	676.4	629.2		268.3	37.8	1.000153
19000.0	496.9	-13.3	-32.4	18.4	666.0	627.8		268.9	37.3	1.000151
19500.0	487.2	-14.4	-33.3	18.6	655.8	626.5		269.7	36.6	1.000148
20000.0	477.7	-15.5	-34.1	18.7	645.8	625.1		271.5	35.3	1.000146
20500.0	468.4	-16.6	-35.0	18.9	635.9	623.8		273.3	33.9	1.000143
21000.0	459.2	-17.7	-35.8	19.0	626.1	622.5		274.8	32.6	1.000141
21500.0	449.9	-18.4	-36.2	19.5	615.2	621.6		275.0	31.9	1.000139
22000.0	440.8	-19.1	-36.5	20.0	604.4	620.7		275.1	31.0	1.000136
22500.0	431.9	-19.8	-36.9	20.4	593.9	619.8		275.0	30.1	1.000134
23000.0	423.2	-20.5	-37.3	20.9	583.5	619.0		273.9	29.1	1.000131
23500.0	414.5	-21.6	-38.2	21.0	574.0	617.7		272.9	28.0	1.000129
24000.0	406.1	-22.7	-39.2	21.0	564.9	616.2		271.4	27.0	1.000127
24500.0	397.7	-23.9	-40.2	21.0	555.9	614.7		269.4	26.1	1.000125
25000.0	389.3	-25.2	-41.2	21.1	546.9	613.2		267.3	25.2	1.000123
25500.0	381.1	-26.4	-42.2	21.2	538.0	611.7		265.9	24.4	1.000121
26000.0	373.0	-27.7	-43.3	21.3	529.4	610.1		265.0	23.8	1.000119
26500.0	365.1	-28.9	-44.3	21.4	520.8	608.6		264.1	23.1	1.000117
27000.0	357.4	-30.1	-45.3	21.5	512.4	607.0		265.5	23.1	1.000115
27500.0	349.9	-31.4	-46.4	21.6	504.2	605.5		267.4	23.1	1.000113
28000.0	342.5	-32.6	-47.4	21.7	496.1	603.9		269.4	23.2	1.000111
28500.0	335.3	-33.9	-48.4	21.8	488.1	602.3		272.6	23.8	1.000109
29000.0	328.2	-35.1	-49.5	21.9	480.3	600.8		275.9	24.5	1.000107
29500.0	321.3	-36.4	-50.5	22.0	472.7	599.2		279.1	25.1	1.000106
30000.0	314.2	-37.6	-53.0	18.7**	464.8	597.6		282.8	26.5	1.000104
30500.0	307.3	-38.9	-55.7	15.3**	457.0	596.0		286.5	28.0	1.000102
31000.0	300.5	-40.2	-58.8	11.9**	449.4	594.4		290.2	29.5	1.000100
31500.0	293.9	-41.4	-62.4	8.5**	441.9	592.7		293.1	31.0	1.000098
32000.0	287.4	-42.7	-67.1	5.1**	434.5	591.1		295.6	32.5	1.000097
32500.0	281.1	-44.0	-75.6	1.7**	427.3	589.5		298.0	33.9	1.000095
33000.0	274.7	-45.3	0.	-0. **	420.1	587.8		299.8	35.4	1.000094

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
5 JAN. 67 0900 HRS MST
ASCENSION NO. 7

UPPER AIR DATA
0917003904
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE			KNOTS	DEGREES(TN)	DIRECTION DEGREES(TN)	SPEED KNOTS	
33500.0	268.4	-46.6	0.	-0. **	412.9	586.0	300.8	300.8	36.8	1.000092
34000.0	262.3	-48.0	0.	-0. **	405.8	584.3	301.9	301.9	38.2	1.000090
34500.0	256.3	-49.3	0.	-0. **	398.9	582.6	302.7	302.7	39.3	1.000089
35000.0	250.4	-50.6	0.	-0. **	392.1	580.8	302.4	302.4	39.3	1.000087
35500.0	244.7	-52.0	0.	-0. **	385.4	579.1	302.0	302.0	39.4	1.000086
36000.0	239.1	-53.3	0.	-0. **	378.9	577.3	301.7	301.7	39.5	1.000084
36500.0	233.5	-54.6	0.	-0. **	372.3	575.6	301.3	301.3	39.4	1.000083
37000.0	228.0	-55.7	0.	-0. **	365.4	574.1	300.9	300.9	39.2	1.000081
37500.0	222.6	-56.9	0.	-0. **	358.5	572.6	300.5	300.5	39.1	1.000080
38000.0	217.3	-58.0	0.	-0. **	351.9	571.1	299.4	299.4	38.8	1.000078
38500.0	212.1	-59.2	0.	-0. **	345.3	569.6	296.4	296.4	38.4	1.000077
39000.0	207.0	-60.3	0.	-0. **	338.9	568.0	293.5	293.5	37.9	1.000075
39500.0	202.1	-61.5	0.	-0. **	332.7	566.3	290.7	290.7	37.6	1.000074
40000.0	197.2	-61.9	0.	-0. **	325.3	565.9	289.1	289.1	38.5	1.000072
40500.0	192.4	-61.6	0.	-0. **	316.9	566.4	287.5	287.5	39.5	1.000071
41000.0	187.8	-61.1	0.	-0. **	308.6	567.0	285.4	285.4	40.5	1.000069
41500.0	183.2	-61.9	0.	-0. **	302.3	565.9	282.3	282.3	41.6	1.000067
42000.0	178.8	-62.7	0.	-0. **	296.0	564.9	279.2	279.2	42.8	1.000066
42500.0	174.4	-63.0	0.	-0. **	289.2	564.5	277.1	277.1	44.7	1.000064
43000.0	170.2	-63.3	0.	-0. **	282.5	564.1	276.0	276.0	47.3	1.000063
43500.0	166.0	-63.6	0.	-0. **	276.0	563.7	274.9	274.9	50.0	1.000061
44000.0	162.0	-63.9	0.	-0. **	269.6	563.3	272.9	272.9	51.4	1.000060
44500.0	158.0	-64.1	0.	-0. **	263.4	562.9	270.8	270.8	52.7	1.000059
45000.0	154.1	-64.4	0.	-0. **	257.3	562.5	269.9	269.9	53.7	1.000057
45500.0	150.4	-64.7	0.	-0. **	251.4	562.2	269.2	269.2	54.5	1.000056
46000.0	146.7	-65.3	0.	-0. **	245.8	561.4	265.2	265.2	53.6	1.000055
46500.0	143.0	-66.3	0.	-0. **	240.9	560.0	269.3	269.3	52.2	1.000054
47000.0	139.5	-67.3	0.	-0. **	236.1	558.6	269.2	269.2	52.3	1.000053
47500.0	136.0	-68.4	0.	-0. **	231.4	557.2	269.0	269.0	52.6	1.000052
48000.0	132.6	-69.3	0.	-0. **	226.7	555.9	268.9	268.9	53.2	1.000050

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3949.0 FEET MSL

5 JAN. 67

ASCENSION NO. 7

UPPER AIR DATA

0917003904

WHITE SANDS SITE

TABLE VII (Cont)

WSYM SITE COORDINATES

E 488,380 FEET

N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
48500.0	129.3	-69.6	0.	-0. **	221.3	555.5	269.0	53.2	1.000049
49000.0	126.0	-69.8	0.	-0. **	216.0	555.2	269.6	51.5	1.000048
49500.0	122.8	-70.1	0.	-0. **	210.8	554.8	270.8	50.3	1.000047
50000.0	119.7	-70.4	0.	-0. **	205.7	554.5	272.9	49.6	1.000046
50500.0	116.7	-70.6	0.	-0. **	200.8	554.1	274.4	47.9	1.000045
51000.0	113.8	-70.9	0.	-0. **	196.0	553.8	275.4	45.5	1.000044
51500.0	110.9	-71.1	0.	-0. **	191.3	553.4	274.2	44.9	1.000043
52000.0	108.1	-71.4	0.	-0. **	186.7	553.1	272.4	44.7	1.000042
52500.0	105.4	-71.7	0.	-0. **	182.2	552.7	269.2	44.5	1.000041
53000.0	102.7	-71.9	0.	-0. **	177.0	552.3	268.0	44.6	1.000040
53500.0	100.1	-72.2	0.	-0. **	173.6	552.0	269.1	45.2	1.000039
54000.0	97.6	-71.7	0.	-0. **	168.8	552.6	270.8	46.7	1.000038
54500.0	95.2	-71.3	0.	-0. **	164.2	553.3	272.7	47.5	1.000037
55000.0	92.8	-70.8	0.	-0. **	159.7	553.9	275.4	45.2	1.000036
55500.0	90.5	-70.3	0.	-0. **	155.4	554.6	277.2	42.9	1.000035
56000.0	88.2	-69.8	0.	-0. **	151.1	555.3	277.9	40.6	1.000034
56500.0	86.0	-69.3	0.	-0. **	147.0	555.9	278.4	37.8	1.000033
57000.0	83.9	-68.8	0.	-0. **	143.0	556.6	278.6	34.6	1.000032
57500.0	81.8	-68.3	0.	-0. **	139.1	557.2	278.9	32.4	1.000031
58000.0	79.7	-67.9	0.	-0. **	135.3	557.9	279.1	30.8	1.000030
58500.0	77.7	-67.4	0.	-0. **	131.6	558.6	278.7	29.7	1.000029
59000.0	75.8	-66.9	0.	-0. **	128.0	559.2	278.0	28.8	1.000029
59500.0	73.9	-66.4	0.	-0. **	124.5	559.9	273.2	27.2	1.000028
60000.0	72.0	-65.9	0.	-0. **	121.1	560.5	266.7	25.3	1.000027
60500.0	70.2	-65.4	0.	-0. **	117.8	561.2	261.4	24.8	1.000026
61000.0	68.5	-65.2	0.	-0. **	114.8	561.5	256.6	24.7	1.000026
61500.0	66.8	-65.5	0.	-0. **	112.1	561.1	256.5	24.5	1.000025
62000.0	65.2	-65.7	0.	-0. **	109.5	560.8	257.4	24.2	1.000024
62500.0	63.6	-66.0	0.	-0. **	106.9	560.4	271.8	22.7	1.000024
63000.0	62.0	-66.3	0.	-0. **	104.4	560.0	288.2	19.9	1.000023

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
5 JAN. 67 0900 HRS MST
ASCENSION NO. 7

UPPER AIR DATA
0917003904
WHITE SANDS SITE
TABLE VII (Cont)

WSTH SITE COORDINATES
E 408,580 FEET
N 105,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
63500.0	60.5	-65.5	0.	-0. **	101.5	561.1	294.5	20.2	1.000023	
64000.0	59.0	-64.7	0.	-0. **	98.7	562.2	294.9	20.7	1.000022	
64500.0	57.6	-63.9	0.	-0. **	95.9	563.2	303.0	18.2	1.000021	
65000.0	56.2	-63.1	0.	-0. **	93.3	564.3	305.9	15.5	1.000021	
65500.0	54.9	-62.3	0.	-0. **	90.7	565.4	299.5	12.7	1.000020	
66000.0	53.5	-61.5	0.	-0. **	88.1	566.4	293.7	9.9	1.000020	
66500.0	52.2	-60.7	0.	-0. **	85.7	567.5	304.3	7.0	1.000019	
67000.0	51.0	-59.9	0.	-0. **	83.3	568.6	323.5	5.3	1.000019	
67500.0	49.7	-59.1	0.	-0. **	81.0	569.6	0.3	5.8	1.000018	
68000.0	48.5	-58.3	0.	-0. **	78.7	570.7	17.1	6.0	1.000018	
68500.0	47.4	-57.6	0.	-0. **	76.6	571.7	22.7	6.1	1.000017	
69000.0	46.2	-57.1	0.	-0. **	74.6	572.3	34.7	8.9	1.000017	
69500.0	45.2	-56.9	0.	-0. **	72.8	572.6	45.3	11.1	1.000016	
70000.0	44.1	-56.7	0.	-0. **	71.0	572.9	48.9	10.9	1.000016	
70500.0	43.1	-56.4	0.	-0. **	69.2	573.2	53.4	11.4	1.000015	
71000.0	42.0	-56.2	0.	-0. **	67.5	573.5	59.0	12.6	1.000015	
71500.0	41.1	-56.0	0.	-0. **	65.9	573.8			1.000015	
72000.0	40.1	-55.7	0.	-0. **	64.2	574.1			1.000014	
72500.0	39.1	-55.5	0.	-0. **	62.7	574.5			1.000014	
73000.0	38.2	-55.3	0.	-0. **	61.1	574.8			1.000014	

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

RELEASE TIME (MST)		SECOND-STAGE IMPACT DISPLACEMENT IN MILES DUE TO WIND										AZI- MUTH (DEG- REES)	THEORETICAL IMPACT FROM LAUNCHER (IN MILES)		
		11-216 FT				216-4000 FT		4000-74200 FT		TOTAL					
		N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W						
RAWIN- SONDE	PIBAL	0600	0700	0.1N	0.3W	2.3S	2.0W	7.2N	14.9W	5.0N	17.2W	356.9	67.4	67.3N	3.6W
0600	0730	0.4N	0.9W	4.8S	2.5W	7.2N	14.9W	2.7N	18.3W	355.9	65.2	65.0N	4.7W		
0600	0800	0.0	0.6W	3.0S	2.5W	7.2N	14.9W	4.2N	18.0W	356.2	66.6	66.5N	4.4W		
0600	0815	0.0	0.6W	4.2S	4.0W	7.2N	14.9W	3.0N	22.5W	352.2	66.9	65.3N	8.9W		
0600	0830	0.0	0.8W	4.3S	2.7W	7.2N	14.9W	2.9N	18.4W	355.8	65.4	65.2N	4.8W		
0600	0840	0.0	0.6W	4.7S	1.8W	7.2N	14.9W	2.5N	17.3W	356.7	64.9	64.8N	3.7W		
0600	0850	0.0	0.6W	4.8S	2.6W	7.2N	14.9W	2.4N	18.1W	356.0	64.9	64.7N	4.5W		
* 0900	* 0902	0.0	0.6W	5.1S	2.8W	5.3N	16.4W	0.2N	19.8W	354.3	62.8	62.5N	6.2W		

* Post Shoot Data

AZIMUTH (DEG- REES)	MILES FROM LAUNCHER		
	RANGE	N-S	E-W
LAUNCHER SETTING (ELEVATION 85.3 DEGREES QE)	65.9	62.3N	18.2E
NO WIND IMPACT	63.8	62.3N	13.6E
PREDICTED SECOND-STAGE IMPACT	68.7	68.6N	3.0W
SECOND-STAGE IMPACT, ** SOTIM	64.9	64.5N	7.5W
PREDICTED BOOSTER IMPACT	1.4	1.0N	0.9E
ACTUAL BOOSTER IMPACT	N/A	N/A	N/A

TABLE VIII. IMPACT PREDICTION DATA, NIKB-HYDAC STV (SR-045)

** Sonic observation of trajectory and impact of missiles.

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) U. S. Army Electronics Command Fort Monmouth, New Jersey		2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED
		2b. GROUP
3. REPORT TITLE METEOROLOGICAL DATA REPORT, NIKE-HYDAC STV (SR-045)		
4. DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5. AUTHOR(S) (Last name, first name, initial) DUNAWAY, Gordon L.		
6. REPORT DATE January 1967	7a. TOTAL NO. OF PAGES 21	7b. NO. OF REFS None
8a. CONTRACT OR GRANT NO.	9a. OPERATOR'S REPORT NUMBER(S) DR-149	
a. PROJECT NO.		
c. DA Task IV650212A127-02	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
d.		
10. AVAILABILITY/LIMITATION NOTICES Distribution of this document is unlimited.		
11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY U. S. Army Electronics Command Atmospheric Sciences Laboratory White Sands Missile Range, New Mexico	
13. ABSTRACT Meteorological data gathered for the launching of Nike-Hydac STV (SR-045) are presented for the Ballistics Systems Division, U. S. Air Force and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.		

DD FORM 1473
1 JAN 64

UNCLASSIFIED

Security Classification

UNCLASSIFIED
Security Classification

14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
1. Ballistics 2. Meteorology 3. Wind						

INSTRUCTIONS

1. ORIGINATING ACTIVITY: Enter the name and address of the contractor, subcontractor, grantee, Department of Defense activity or other organization (corporate author) issuing the report.

2a. REPORT SECURITY CLASSIFICATION: Enter the overall security classification of the report. Indicate whether "Restricted Data" is included. Marking is to be in accordance with appropriate security regulations.

2b. GROUP: Automatic downgrading is specified in DoD Directive 5200.10 and Armed Forces Industrial Manual. Enter the group number. Also, when applicable, show that optional markings have been used for Group 3 and Group 4 as authorized.

3. REPORT TITLE: Enter the complete report title in all capital letters. Titles in all cases should be unclassified. If a meaningful title cannot be selected without classification, show title classification in all capitals in parenthesis immediately following the title.

4. DESCRIPTIVE NOTES: If appropriate, enter the type of report, e.g., interim, progress, summary, annual, or final. Give the inclusive dates when a specific reporting period is covered.

5. AUTHOR(S): Enter the name(s) of author(s) as shown on or in the report. Enter last name, first name, middle initial. If military, show rank and branch of service. The name of the principal author is an absolute minimum requirement.

6. REPORT DATE: Enter the date of the report as day, month, year; or month, year. If more than one date appears on the report, use date of publication.

7a. TOTAL NUMBER OF PAGES: The total page count should follow normal pagination procedures, i.e., enter the number of pages containing information.

7b. NUMBER OF REFERENCES: Enter the total number of references cited in the report.

8a. CONTRACT OR GRANT NUMBER: If appropriate, enter the applicable number of the contract or grant under which the report was written.

8b, 8c, & 8d. PROJECT NUMBER: Enter the appropriate military department identification, such as project number, subproject number, system numbers, task number, etc.

9a. ORIGINATOR'S REPORT NUMBER(S): Enter the official report number by which the document will be identified and controlled by the originating activity. This number must be unique to this report.

9b. OTHER REPORT NUMBER(S): If the report has been assigned any other report numbers (either by the originator or by the sponsor), also enter this number(s).

10. AVAILABILITY/LIMITATION NOTICES: Enter any limitations on further dissemination of the report, other than those imposed by security classification, using standard statements such as:

- (1) "Qualified requesters may obtain copies of this report from DDC."
- (2) "Foreign announcement and dissemination of this report by DDC is not authorized."
- (3) "U. S. Government agencies may obtain copies of this report directly from DDC. Other qualified DDC users shall request through _____."
- (4) "U. S. military agencies may obtain copies of this report directly from DDC. Other qualified users shall request through _____."
- (5) "All distribution of this report is controlled. Qualified DDC users shall request through _____."

If the report has been furnished to the Office of Technical Services, Department of Commerce, for sale to the public, indicate this fact and enter the price, if known.

11. SUPPLEMENTARY NOTES: Use for additional explanatory notes.

12. SPONSORING MILITARY ACTIVITY: Enter the name of the departmental project office or laboratory sponsoring (paying for) the research and development. Include address.

13. ABSTRACT: Enter an abstract giving a brief and factual summary of the document indicative of the report, even though it may also appear elsewhere in the body of the technical report. If additional space is required, a continuation sheet shall be attached.

It is highly desirable that the abstract of classified reports be unclassified. Each paragraph of the abstract shall end with an indication of the military security classification of the information in the paragraph, represented as (TS), (S), (C), or (U).

There is no limitation on the length of the abstract. However, the suggested length is from 150 to 225 words.

14. KEY WORDS: Key words are technically meaningful terms or short phrases that characterize a report and may be used as index entries for cataloging the report. Key words must be selected so that no security classification is required. Identifiers, such as equipment model designation, trade name, military project code name, geographic location, may be used as key words but will be followed by an indication of technical context. The assignment of links, rules, and weights is optional.

UNCLASSIFIED
Security Classification